

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Linwood Anderson Patent No.: 6,843,824 B2
Assignee : Cerbide Issued: January 18, 2005
Appl. No. : 10/008,806
Filed : November 13, 2001
Title : METHOD OF MAKING A CERAMIC BODY OF DENSIFIED
TUNGSTEN CARBIDE

Attention Certificate of Corrections Branch
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Certificate
MAR 24 2005
of Correction

TRANSMITTAL LETTER

Transmitted herewith for filing in the above-referenced patent application are the following documents:

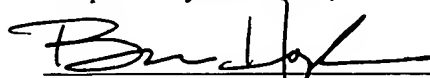
- ☒ Request for Certificate of Correction of Letters Patent [2 pgs.];
- ☒ Certificate of Correction [1 pg.];
- ☒ Copy of Modified Form 1449/PTO filed on June 18, 2002 and initialed by the Examiner on April 29, 2003 [2 pgs.];
- ☒ Copy of the first page of U.S. Patent No. 6,843,824 B2 issued on January 18, 2005 [1 pg.] and
- ☒ a Return postcard.

Applicants believe that no fees are due in connection with this submission. However, the Director is authorized to credit any overpayment or charge any fees to Deposit Account No. 50-0311, Reference No. 20264-502, Customer No. 35437.

If the enclosed papers are considered incomplete, the Mail Room is respectfully requested to contact the undersigned collect at (212) 935-3000, New York, New York.

Dated: March 17, 2005

Respectfully submitted,



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Brian P. Hopkins, Reg. No. 42,669

Attorneys for Applicant

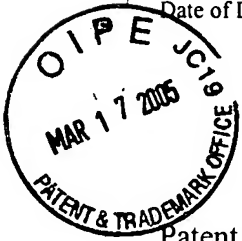
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent No.: **6,843,824 B2**
Issued: **January 18, 2005**
Applicant: **Linwood Anderson**
Assignee: **Cerbide**
Serial No.: **10/008,806**
Filed: **November 13, 2001**
For: **METHOD OF MAKING A CERAMIC BODY OF DENSIFIED TUNGSTEN
CARBIDE**

Attention Certificate of Corrections Branch
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REQUEST FOR CERTIFICATE OF CORRECTION OF LETTERS PATENT

Enclosed please find a Certificate of Correction for an error, which was made by the U.S.
Patent and Trademark Office in the above-referenced issued patent.

REMARKS

Upon review of the issued patent, the following error was discovered:

On the title page:

In column 1, after “(56) References Cited - U.S. Patent Documents”, please insert
the following reference after line 14:

-- 4,828,584 A 5/1989 Cutler 51/307--

MAR 25 2005

Patent No.: 6,843,824 B2
Date of Patent: January 18, 2005

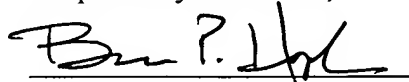
The patentee of the above-identified patent, through its attorney, hereby requests issuance of a Certificate of Correction, to correct the omission of one of the prior art references which was cited on the Modified Form 1449/PTO document, filed on June 18, 2002 and initialed by the Examiner on April 29, 2003. A copy of the initialed Modified Form 1449/PTO document listing the U.S. Patent No. 4,828,584A, issue date May 9, 1989, name of patentee: Cutler, is enclosed for your reference.

Applicant respectfully submits that the missing reference that appears in the issued patent is an error made by the U.S. Patent and Trademark Office, and Applicant respectfully requests that the attached Certificate of Correction be issued.

No fees are believed due in connection with this submission, however, the Director is hereby authorized to charge any fees due credit any overpayment of same, to Deposit Account No. 50-0311, Reference No. 20264-502, Customer No. 35437.

Should the Certificates Branch wish to discuss Applicants' request for a Certificate of Correction, the Certificates Branch is invited to telephone the undersigned attorney at (212) 692-6803.

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Date: March 17, 2005

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO.: 6,843,824 B2
DATED: January 18, 2005
INVENTOR: Linwood Anderson

It is certified that errors appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

(56) References Cited

U.S. PATENT DOCUMENTS

In column 1, after line 14, insert "4,828,584 A 5/1989 Cutler 51/307"

MAILING ADDRESS OF SENDER:

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MAR 25 2005

Modified Form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Application Number	10/008,806
Filing Date	11/13/2001
First Named Inventor	Anderson
Group Art Unit	1742
Examiner Name	Not Yet Assigned
Attorney Docket Number	20264-502

U.S. PATENT DOCUMENTS

U.S. PATENT DOCUMENTS							
Exam Initials	Cite No.	U.S. Patent Document No.	Issue Date	Name of Patentee(s) or Applicant(s)	Class	Sub Class	Filing Date If Appropriate
nm	A1	3,383,748	1968-05-21	JONES, ET AL.			
	A2	4,056,871	1977-11-08	BATOR			
	A3	4,087,193	1978-05-02	MUNDY			
	A4	4,247,232	1981-06-23	MCCREERY, ET AL.			
	A5	4,126,652	1978-11-21	OOHARA, ET AL.			
	A6	4,146,379	1979-03-27	COPLEY, ET AL.			
	A7	4,162,301	1979-07-24	HAMLING			
	A8	4,256,496	1981-03-17	BRANDSTATTER			
	A9	4,318,645	1982-03-09	MCCREERY			
	A10	4,340,324	1982-07-20	MCCREERY			
	A11	4,664,899	1987-05-12	KIMMEL, ET AL.			
	A12	4,744,943	1988-05-17	TIMM			
	A13	4,753,678	1988-06-28	MARUYAMA, ET AL			
	A14	4,828,584	1989-05-09	CUTLER			
	A15	4,945,073	1990-07-31	DUBENSKY, ET AL.			
	A16	5,026,960	1991-06-25	SLUTZ, ET AL.			
	A17	5,089,447	1992-02-18	TIMM, ET AL.			
	A18	5,141,367	1992-08-25	BEEGHLY, ET AL			
	A19	5,215,945	1993-06-01	DUBENSKY, ET AL.			
	A20	5,330,296	1997-07-19	BEEHGLY, ET AL			
	A21	5,334,561	1994-08-02	MATSUI, ET AL.			
	A22	5,350,258	1994-09-27	BEEGHLY, ET AL			
	A23	5,434,112	1995-07-18	MATSUI, ET AL.			
	A24	5,476,025	1995-12-19	BEEGHLY, ET AL.			
	A25	5,563,107	1996-10-08	DUBENSKY, ET AL.			
	A26	5,612,264	1997-03-18	NILSSON, ET AL.			
	A27	5,628,590	1997-05-13	BEEHGLY, ET AL.			
	A28	5,681,783	1997-10-28	NILSSON, ET AL.			
	A29	5,746,803	1998-05-05	DUNMEAD, ET.AL.			
	A30	5,773,735	1998-06-30	DUBENSKY, ET AL.			
nm	A31	5,827,017	1998-10-27	TAGSTROM, ET AL.			

O I P E
MAR 17 2005
PATENT & TRADEMARK OFFICE

JUN 18 2002
PATENT & TRADEMARK OFFICE

U.S. PATENT DOCUMENTS						
Exam Initials	Cite No.	U.S. Patent Document No.	Issue Date	Name of Patentee(s) or Applicant(s)	Class	Filing Date If Appropriate
h.m.	A32	5,919,428	1999-07-06	GAO, ET AL.		
h.m.	A33	6,007,598	1999-12-28	DUNMEAD, ET AL.		
h.m.	A34	6,033,789	2000-03-07	SAVEKER, ET AL.		

FOREIGN PATENT DOCUMENTS					
Exam Initials	Cite No.	Foreign Patent Document Office Number	Name of Patentee(s) or Applicant(s)	Date of Publication	Translation Yes No
h.m.	B1	EP 0 360 567	THE DOW CHEMICAL COMPANY	1990-03-28	
h.m.	B2	EP 0 476 632	KAWASAKI JUKOGYO KABUSHIKI KAISHA	1992-03-25	

OTHER NON-PATENT LITERATURE DOCUMENTS		
Exam Initials	Cite No.	Name of Author, Title (when appropriate), Publication, Volume, Page(s), Date, Etc.
h.m.	C1	A.G. Evans, (1979). "Impact Damage Mechanics: Solid Projectiles" <i>Treatise on Materials Science and Technology</i> 16: 63-65.
	C2	J.K. Lancaster (1987). "Abrasive Wear," <i>Tribology in Particulate Technology</i> , page 329.
	C3	E.A. Almond et al. (1987). "Some characteristics of Very-Fine-Trained Hardmetals" <i>Metal Powder Report</i> 42 No.7/8
h.m.	C4	Junichi Hojo, et al. (1980). "The Sinterability of Ultrafine WC Powders Obtained by a CVD Method" <i>Journal of Materials Science</i> , pages 2335-2344.

* a copy of this reference is not provided as it was previously cited by or submitted to the office in a prior application, U.S.S.N. _____, filed _____, and relied upon for an earlier filing date under 35 U.S.C. §120 (continuation, continuation-in-part, and divisional applications).

Examiner Signature	<i>Ngilan Man</i>	Date Considered	4/29/03
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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered.

Include copy of this form with next communication to applicant.

TRA 1655083v1



US000843824B2

(12) **United States Patent**
Anderson

(10) **Patent No.:** **US 6,843,824 B2**
(45) **Date of Patent:** **Jan. 18, 2005**

(54) **METHOD OF MAKING A CERAMIC BODY OF DENSIFIED TUNGSTEN CARBIDE**

(75) **Inventor:** **Linwood Anderson, Roscoe, IL (US)**

(73) **Assignee:** **Cerbide, Clifton Park, NY (US)**

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 71 days.

(21) **Appl. No.:** **10/008,806**

(22) **Filed:** **Nov. 13, 2001**

(65) **Prior Publication Data**

US 2003/0084752 A1 May 8, 2003

Related U.S. Application Data

(60) Provisional application No. 60/333,018, filed on Nov. 6, 2001.

(51) **Int. Cl.⁷** **C22C 29/08**

(52) **U.S. Cl.** **75/240; 501/87**

(58) **Field of Search** **75/240; 501/87**

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,383,748 A	5/1968	Jones et al.	
3,660,050 A *	5/1972	Iler et al.	72/240
4,056,871 A	11/1977	Bator	
4,087,193 A	5/1978	Mundy	
4,126,652 A	11/1978	Oohara et al.	
4,146,379 A	3/1979	Copley et al.	
4,162,301 A	7/1979	Hamling	
4,247,232 A	1/1981	McCreery et al.	
4,256,496 A	3/1981	Brandstatter	
4,318,645 A	3/1982	McCreery	
4,340,324 A	7/1982	McCreery	
4,664,899 A	5/1987	Kimmel et al.	423/440
4,744,943 A	5/1988	Timm	419/10
4,753,678 A	6/1988	Maruyama et al.	75/238
4,945,073 A	7/1990	Dubensky et al.	51/93
5,026,960 A	6/1991	Slutz et al.	219/69.17
5,089,447 A	2/1992	Timm et al.	501/87
5,141,367 A	8/1992	Beeghly et al.	407/119
5,215,945 A	6/1993	Dubensky et al.	501/94
5,330,296 A	7/1994	Beeghly et al.	407/114
5,334,561 A	8/1994	Matsui et al.	501/87
5,350,258 A	9/1994	Beeghly et al.	407/119

5,434,112 A	7/1995	Matsui et al.	501/87
5,476,025 A	12/1995	Beeghly et al.	407/114
5,500,289 A *	3/1996	Gavish	428/551
5,563,107 A	10/1996	Dubensky et al.	501/87
5,612,264 A	3/1997	Nilsson et al.	501/87
5,628,590 A	5/1997	Beeghly et al.	407/114
5,658,678 A *	8/1997	Stoll et al.	428/552
5,681,783 A	10/1997	Nilsson et al.	501/87
5,716,170 A *	2/1998	Kammermeier et al.	408/145
5,746,803 A	5/1998	Dunmead et al.	75/351
5,752,155 A *	5/1998	Gates et al.	419/5
5,762,538 A *	6/1998	Shaffer	451/36
5,773,735 A	6/1998	Dubensky et al.	75/240
5,827,017 A	10/1998	Tagstrom et al.	407/116
5,919,428 A	7/1999	Gao et al.	423/440
6,007,598 A	12/1999	Dunmead et al.	75/236
6,027,808 A *	2/2000	Aoki et al.	428/408
6,033,789 A	3/2000	Saveker et al.	420/556
6,096,436 A *	8/2000	Inspektor	428/469

FOREIGN PATENT DOCUMENTS

EP	0 360 567	3/1990
EP	0 476 632	3/1992
JP	10156607 A *	6/1998

OTHER PUBLICATIONS

A.G. Evans (1979). "Impact Damage Mechanics: Solid Projectiles" *Treatise on Materials Science and Technology* 16: 63-65.

J.K. Lancaster (1987). "Abrasive Wear," *Tribology in Particulate Technology*, p. 329.

E.A. Almond et al. (1987). "Some characteristics of Very-Fine-Trained Hardmetals" *Metal Powder Report* 42 No.7/8.

Junichi Hojo, et al. (1980). "The Sinterability of Ultrafine WC Powders Obtained by a CVD Method" *Journal of Materials Science*, pp. 2335-2344.

* cited by examiner

Primary Examiner—Ngoclan T. Mai

(74) *Attorney, Agent, or Firm*—Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.

(57) **ABSTRACT**

A method of making tungsten carbide and a method of making a densified tungsten carbide-containing ceramic body with a transverse rupture strength greater than 300,000 psi are disclosed.

14 Claims, No Drawings